



Project X Working Group Meeting

September 25, 2008

10:00 AM – 12:00 Noon

Snake Pit

Agenda

- CD-0 Mission Need Document [Dean]
 - Statement of Mission Need
 - Alignment
 - Capability Gap
 - Approach
 - Resource and Schedule Forecast
- Discussion on Preparations for CD-0 [Dean and All]
- Project Timeline [Dean and All]
- Next Meeting [Dean]
- Status of Action Items

DOE O 413.3 Actions Authorized by Critical Decision Approvals

DOE O 413.3A (Updated 2/2/07)

Preconceptual Planning	Conceptual Design	Preliminary Design	Final Design	Construction	Operations
✧ CD-0	✧ CD-1	✧ CD-2	✧ CD-3	✧ CD-4	
Approve Mission Need	Approve Alternative Selection & Cost Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Completion	
Actions Authorized by Critical Decision (CD) Approval					
CD-0	CD-1	CD-2	CD-3	CD-4	
<ul style="list-style-type: none"> Proceed with Conceptual Design Request PED funding Start monthly PARS & Quarterly Project Performance reporting 	<ul style="list-style-type: none"> Allow Expenditure of PED Funds for preliminary design Approval of long-lead procurement if necessary 	<ul style="list-style-type: none"> Establish Performance Baseline Continue design Request construction funding 	<ul style="list-style-type: none"> Approve expenditure of funds for construction 	<ul style="list-style-type: none"> Allow start of operations or project completion 	
Non-Nuclear Facilities--Prerequisite Activities for CDs					
<ul style="list-style-type: none"> Review of Mission Need Statement (MNS) by Office of Program Analysis & Evaluation (CP-20) for \$100M or greater. Perform Mission Need Independent Project Review (IPR) for Major System (MS) projects (> \$750K) Perform Pre-conceptual Planning Evaluate Information Technology (IT) projects with Departmental Enterprise Architecture framework 	<ul style="list-style-type: none"> Review of Acquisition Strategy (AS) (OECM review for MS project) Review of Conceptual Design <ul style="list-style-type: none"> Requirements Analysis Risk Analysis Alternative Analysis Value Management determination Assess Requirements Analysis, Risk Analysis, Alternative Analysis, & Value Management. Appoint FPD Establish & charter Integrated Project Team Ensure compliance with One-for-One Replacement requirement for building square footage Ensure Integrated Safety Management Implementation Ensure consideration for High Performance Sustainable Building Assess if QA Program is acceptable 	<ul style="list-style-type: none"> Perform Baseline External Independent Review (EIR) & validation by OECM for \$100M or greater. Perform Independent Cost Review or Independent Cost Estimates for MS project as part of EIR Program IPR for \$20M to less than \$100M Review of Preliminary Design Establish compliant project EVMS for \$20M or more, & OECM certifiable EVMS for project TPC with \$50M or more Conduct Value Engineering (as applicable) Incorporate High Performance Sustainable Building provisions into design Determine if QA Program is acceptable 	<ul style="list-style-type: none"> Perform Executability EIR by OECM for MS projects Perform IPR for Non-MS projects by Program (SC) 	<ul style="list-style-type: none"> Verify Key Performance Parameter or Completion Criteria achieved Perform Readiness Assessment or Operational Readiness Review Revise environmental management system. 	<p>Post CD-4 Closeout</p> <ul style="list-style-type: none"> Perform Final Administrative & Financial Closeout Conduct Post Implementation Review for IT projects
Hazard Category 1, 2, and 3 Nuclear Facilities--Additional Prerequisite Activities/Documents for CDs					
	<ul style="list-style-type: none"> Perform Technical IPR Prepare Conceptual Safety Design Report (SDR) Prepare a Preliminary Safety Validation Report (PSVR) 	<ul style="list-style-type: none"> Prepare Preliminary SDR Prepare a PSVR based on updated design 	<ul style="list-style-type: none"> Prepare Preliminary Documented Safety Analysis Report (SAR) Prepare SER 	<ul style="list-style-type: none"> Prepare Documented SAR with Technical Safety Requirements Prepare SER 	
Prerequisite Documents					
<ul style="list-style-type: none"> MNS Tailoring Strategy 	<ul style="list-style-type: none"> Acquisition Strategy Conceptual Design Report Risk Management Plan Risk Assessment Preliminary PEP Preliminary Hazard Analysis (HA) Preliminary Security Vulnerability Assessment Report (SVAR) Initial Cyber Security Plan for IT projects QA Program Documentation 	<ul style="list-style-type: none"> Performance Baseline Preliminary Design Updated Risk Assessment Updated PEP Updated HA (Approved at Field Level) Updated Preliminary SVAR NEPA Documentation Updated Initial Cyber Security Plan for IT projects 	<ul style="list-style-type: none"> Final Design Updated CD-2 documents Updated QA Program An Approved Construction Project Safety & Health Plan Updated Cyber Security Plan for IT projects 	<ul style="list-style-type: none"> Checkout, Testing & Commissioning Plan Project Transition/ Closeout Plan Transition-to-Operations Plan Finalized QA Plan, SVAR, HA Report, Construction Project Safety & Health Plan, Finalized Cyber Security Plan for IT projects & completed Certification & Accreditation, as required 	<p>Post CD-4 Closeout</p> <ul style="list-style-type: none"> Final Project Closeout Report Lessons Learned Report Required Operational Documentation
<ul style="list-style-type: none"> AS-Acquisition Strategy EIR-External Independent Review EVMS-Earned Value Mgmt. System HA-Hazard Analysis IPR-Internal Project Review 	<ul style="list-style-type: none"> MNS-Mission Need Statement MS-Major Systems OECM-Office of Engr. & Const. Mgmt. QA-Quality Assurance PSVR-Prelim. Safety Validation Report 	<ul style="list-style-type: none"> SAR-Safety Analysis Report SDR-Safety Design Report SER-Safety Evaluation Report SVAR-Security Vulnerability Assess. Report TPC-Total Project Cost 			
Budget Related Documents					
<ul style="list-style-type: none"> After CD-0 approval, Exhibit 300 for Projects >\$20M: Annual submission initiated during the federal budget cycle when funds are requested. Project Data Sheets: Annual submission initiated during the federal budget cycle when TEC funds are requested. 					

CD-0 Prerequisites for Project X

- **Perform Pre-conceptual Planning** activities that focus on the Program's strategic goals and objectives, safety planning, and design.
- **Prepare a Mission Need Statement** that documents a mission requirement that cannot be met through other than material means. Additionally, the Mission Need Statement will document the potential hazards and their safety, security, and risk implications.
 - DOE G 413.3-17 Mission Need Statement Guide
<http://www.directives.doe.gov/pdfs/doe/doetext/neword/413/g4133-17.pdf>
 - Mission Need Statement Review. The Office of Program Analysis and Evaluation within the Office of the Chief Financial Officer will review the Mission Need Statement and provide a recommendation to the Program Secretarial Officer
- **Perform Mission Validation Independent Project Review (*Lehman Review*)**. A Mission Validation Independent Project Review is a limited review prior to CD-0 for Major System projects. It validates the mission need and the cost range. A Value Study may also be conducted, as appropriate, to assist in CD-0.

Other Pre CD-0 Work

- **Develop estimate to request Project Engineering and Design (PED) funds.** PED funds are requested at CD-0 using a Project Data Sheet as “design only” funds for preliminary and final design. PED funds are not to be used for construction, long-lead procurement, or major equipment items. PED funding requests are developed from historical data or parametric estimates.
- The objectives for the use of PED funds are to:
 - Improve the accuracy of the project cost estimate and support establishment of the Performance Baseline
 - Improve the DOE’s planning, programming, and budgeting process for the acquisition of projects
 - Provide funds for Value Management (VM) activities
- PED funds can be made available at CD-1

Mission Need Statement Guide

- DOE G 413.3-17 dated 6-20-08
- <http://www.directives.doe.gov/pdfs/doe/doetext/neword/413/g4133-17.pdf>

Statement of Mission Need

- Provide a clear and concise paragraph (a few sentences) that lays out the essential summary of the mission need. The section of the mission need statement dedicated to defining the capability gap should describe the gap between the current state of the program's mission and the mission plan.

Alignment

- Strategic Department or Program Mission
- Strategic Fit of Mission Need
- Priority of Mission Need
- Internal/External Drivers

Capability Gap

- **Capability Gap** – how are you filling the gap with this project
- **Other Potential Capabilities**
- **Benefits from Closing the Gap**
- **Impact if Gap is Not Resolved**
- **High Level Interdependencies** - with existing and planned acquisitions; requirements for compatibility with existing or future systems; or cooperative opportunities

Approach

- **Planned Approach** - describe what has been considered or what will be analyzed as potential strategies
- **Assumptions**
- **Constraints**
 - Technical Risks
 - Safety Risks
 - Cost Risks
 - Schedule Risks
 - Legal Risks

Resource and Schedule Forecast

- **Rough Order of Magnitude Cost Estimate Range**
 - (-50 percent to +100 percent, for example) of project cost and schedule based on the upper bound of the rough order of magnitude estimate.
- **Estimated Cost** - resource planning funding profile with a breakout of project engineering and design funds and an explanation of funding needs to proceed from Critical Decision-0 to Critical Decision-1.
- **Rough Order of Magnitude Schedule Estimate** - identify the estimated dates (fiscal year only) for meeting subsequent Critical Decisions

Resource and Schedule Forecast - Example

ROM Cost Estimate Range: \$300M \leq estimate range \leq \$700M

Estimated Cost.

The estimated cost needed to proceed to CD-1 is \$10 million. This estimate is \$2 million more than the current funded amount of \$8 million. The funding profile by fiscal year for the upcoming FY08-FY12 planning window is contained in the chart below:

Five-Year Planning Period					
Fiscal Year	08	09	10	11	12
ROM estimate of PED profile		\$35M	\$40M	\$15M	
ROM estimate of 5-yr cost profile	\$10 M	\$60M	\$110M	\$120M	\$130M

ROM Schedule Estimate.

Current estimated dates for major milestones are as follows:

Conceptual design start	FY2008
Preliminary design start	FY2009
Construction start	FY2010
Startup and testing	FY2012
Operations start	FY2013
Operations complete	FY2015

Things Needed to Prepare for CD-0

- Complete Initial Configuration Document
- Develop Project Scope
 - Develop Work Breakdown Structure (WBS)
 - Develop WBS Dictionary
- Create and Maintain Key Assumption Document (Cost, Schedule, Technical and Programmatic) – have NOvA example
- Identify High Level Project Risks
- Develop Contingency Analysis Rules (both Scope and Schedule) – Have NOvA and LCLS examples

Things Needed to Prepare for CD-0

(continued)

- Develop High Level Schedule to Identify Schedule Range and Estimated CD Dates
- Develop Cost Estimate Range
 - Total estimate from CD-0 through CD-4 (What was called R&D is now part of the OPC after CD-0)
 - TPC includes TEC, OPC and Contingency
 - Need to split out Project Engineering and Design (PED) funds for use in preliminary design, final design, and baseline development
 - Include impact of risks and alternative designs to establish range
 - Include Spares

Other Items to Address before CD-0

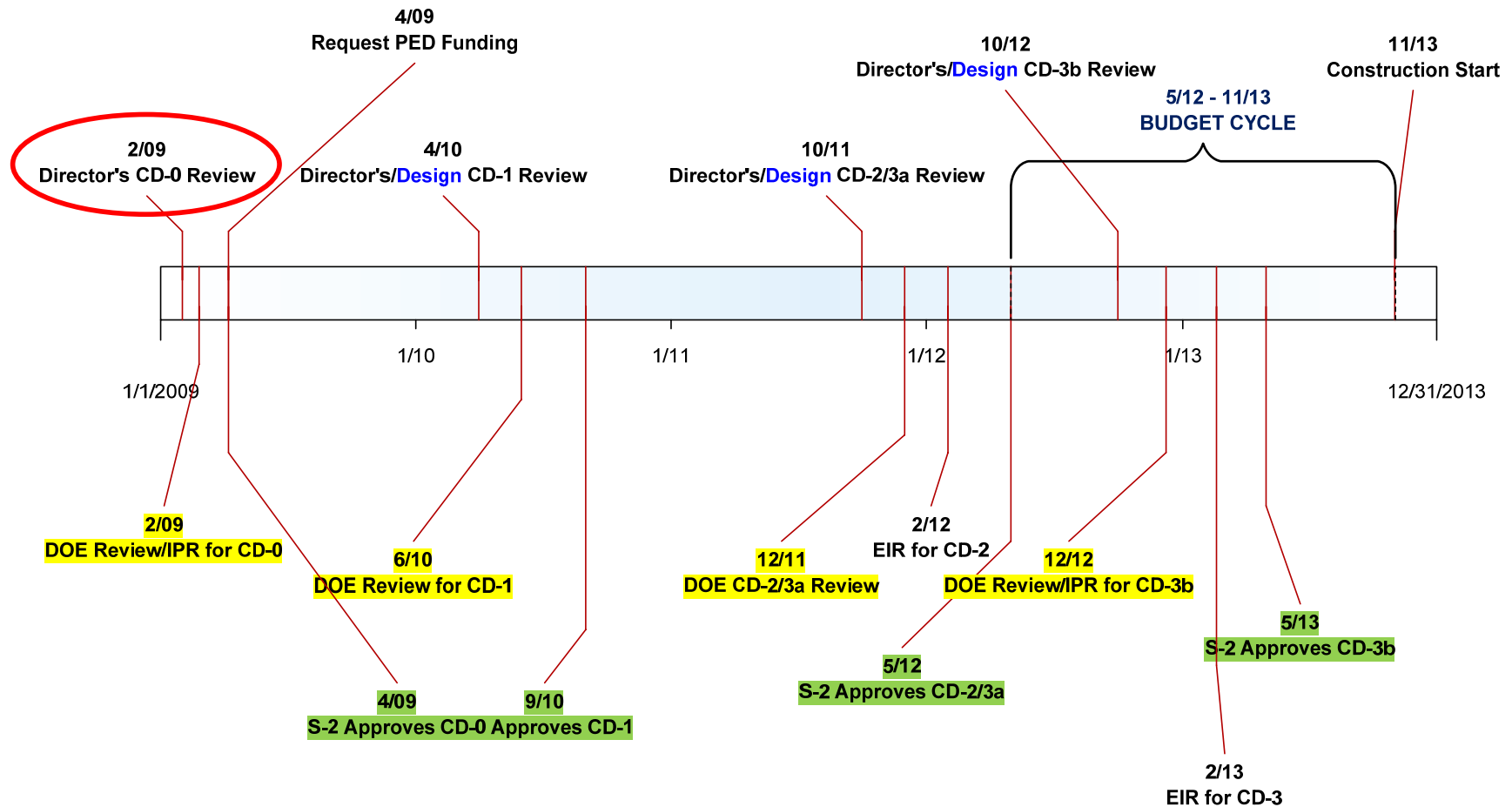
- Determine Scheduling Tool
- Evaluate and Establish Cost Estimating Tool and Process
- Establish Document Repository and Configuration Control Process

Timeline Scenarios

1. Construction Start FY13; PED FY11
 2. Construction Start FY14; PED FY12
- Assumes: April deadline for CD-0 approval and one budget cycle (18 months) for PED funds availability
Construction start = CD-3b approval and one budget cycle (15-18 months) after CD-2

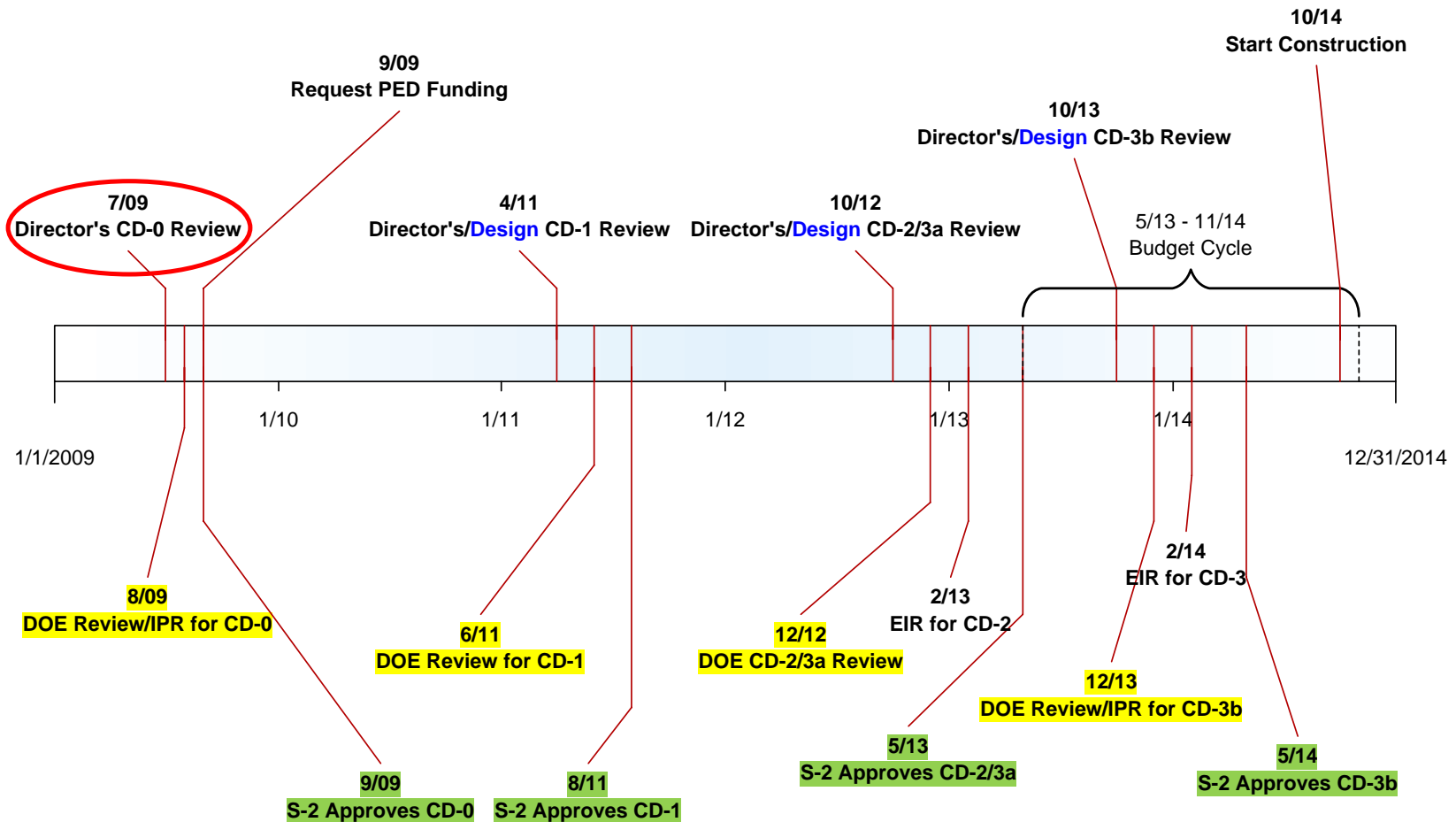
Case #1 Timeline

CD-0 Spring 09, PED funds FY11



Case #2 Timeline

CD-0 Fall 09, PED funds FY12



Next Meeting

- Recurring WGM to be Monthly
- Still trying to establish day and time that maximum number of people can attend

Action Items

ACTION ITEMS AS A RESULT OF THIS MEETING:	
New Action Items	Person Responsible
Determine how quickly NSLS-II has achieved its CD's	D Hoffer/E McCluskey
Add NEPA coordinator to project staffing list	D Hoffer
Add Computing Division & PPD to invitation list for next meeting	E McCluskey